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10/532,653	10/31/2005	Joel Queirel	0584-1031	6277
<div>466 7590 01/29/2010</div> <div>YOUNG &amp; THOMPSON 209 Madison Street Suite 500 Alexandria, VA 22314</div>				
EXAMINER				
BERTHEAUD, PETER JOHN				
ART UNIT		PAPER NUMBER		
3746				
NOTIFICATION DATE		DELIVERY MODE		
01/20/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

# Office Action Summary

**Application No.**

10/532,653

**Applicant(s)**

QUEIREL, JOEL

**Examiner**

PETER J. BERTHEAUD

**Art Unit**

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 11-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 15 is/are allowed.
- 6) ☒ Claim(s) 1-8, 11, 12, 16, 17 and 19 is/are rejected.
- 7) ☒ Claim(s) 13 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This Office action is in response to amendments filed 10/8/2009. It should be noted that claims 12-19 are new. Due to new grounds of rejection this Office action has been made Non Final.

#### ***Claim Objections***

2. Claim 16 is objected to because of the following informalities: In line 24 of claim 16 the term "communicating" should be --communication--. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 5-8, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 2, 5, and 6 contain the limitations, "the water pumped by the second impeller" either "circulates around the motor" or is "carried out" to a structure which surrounds the motor. These limitations are indefinite because it is unclear if the "water pumped by the second impeller" is going to or from the second impeller based on the limitations. Saying that the "water pumped by the second impeller" circulates or is carried out indicates that the water would perform this function *after* it is pumped. However, in the invention, the water is pumped from the first impeller, circulates through the motor, *and then* is pumped by the second impeller. It is asked that these limitations are clarified.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Pozivil 6,167,724.

Pozivil (Fig. 3) discloses a pump assembly comprising: an electric motor 10 having a drive shaft 174 with axial ends, a first shaft output at a first of the axial ends (see 180), a second shaft output (see 192) at a second of the axial ends, a first pump impeller 180 at the first axial end and driven by the first shaft output, the first impeller operating at a low pressure and high flow rate, the first impeller having a first outlet (see 191) and a second outlet 188 to an exterior of the pump, a second pump impeller 192 at the second axial end and driven by the second shaft output, the second impeller operating at a higher pressure and lower flow rate as compared to the first impeller 180 (see col. 7, lines 12-29), the second impeller 192 having an inlet and a first outlet 198 to the exterior of the pump, wherein the first outlet (191) of the first impeller 180 is connected to the inlet of the second impeller 192 and delivers low pressure water to the inlet of the of the second impeller 192 so that the water flows from a region of low pressure toward a region of higher pressure, and wherein the second outlet 188 of the first impeller 180 and the first outlet 198 of the second impeller 192 are separate outlets to the exterior of the pump (see configuration in Fig. 3); wherein the first outlet (191) of

the first impeller 180 is close to the second outlet 188 of the first impeller; wherein the first outlet (191) of the first impeller 180 is located upstream of the second outlet 188.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 6, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa 4,678,409 in view of Pozivil 6,167,724, and in further view of Kobayashi 5,888,053.

Kurokawa (Fig. 3) discloses a pump system comprising: an electric motor 34 having a drive shaft 38, a first pump impeller 50 at a first axial position, the first impeller 50 having an outlet 70 to an exterior of the pump, a second pump impeller 50 (see how the identical housings are stacked) at a second axial position, the second impeller 50 having an inlet 74 and an outlet 70 to the exterior of the pump, wherein the outlets 70 of the first impeller and the second impeller are separate outlets to the exterior of the pump (see configuration in Fig. 3); wherein the outlets are close to each other. However, Kurokawa does not teach the following inlet, outlet, and impeller limitations taught by Pozivil or the motor cooling assembly of Kobayashi.

Pozivil (Fig. 3) teaches a pump assembly comprising: an electric motor 10 having a drive shaft 174 with axial ends, a first shaft output at a first of the axial ends (see 180), a second shaft output (see 192) at a second of the axial ends, a first pump impeller 180

at the first axial end and driven by the first shaft output, the first impeller operating at a low pressure and high flow rate, the first impeller having a first outlet (see 191) and a second outlet 188 to an exterior of the pump, a second pump impeller 192 at the second axial end and driven by the second shaft output, the second impeller operating at a higher pressure and lower flow rate as compared to the first impeller 180 (see col. 7, lines 12-29), the second impeller 192 having an inlet and a first outlet 198 to the exterior of the pump, wherein the first outlet (191) of the first impeller 180 is connected to the inlet of the second impeller 192 and delivers low pressure water to the inlet of the of the second impeller 192 so that the water flows from a region of low pressure toward a region of higher pressure, and wherein the second outlet 188 of the first impeller 180 and the first outlet 198 of the second impeller 192 are separate outlets to the exterior of the pump (see configuration in Fig. 3); wherein the first outlet (191) of the first impeller 180 is close to the second outlet 188 of the first impeller; wherein the first outlet (191) of the first impeller 180 is located upstream of the second outlet 188.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Kurokawa by implementing the inlet and outlet structure of Pozivil, thereby having the first impeller discharge a portion of fluid to the second impeller, in order to allow the impellers to discharge fluid at different pressures; thus allowing the pump to perform a plurality of pumping duties that require various fluid pressures relatively efficiently (Pozivil, col. 2, lines 1-3).

Kobayashi teaches a pump assembly comprising: an electric motor 6 having a drive shaft 7 with axial ends, a first shaft output at a first of the axial ends (see bottom of

Fig. 1), a second shaft output at a second of the axial ends (see top of Fig. 1), a first pump impeller 8B at the first axial end and driven by the first shaft output, the first impeller 8B having a first outlet (40), a second pump impeller 8C at the second axial end and driven by the second shaft output, the second impeller 8C having an inlet (see top of pump casing) and a first outlet 62 to the exterior of the pump, wherein the first outlet of the first impeller 8B is connected to the inlet of the second impeller 8C and delivers low pressure water to the inlet of the of the second impeller so that the water flows from a region of low pressure toward a region of higher pressure; wherein the water pumped by the second pump impeller 8C circulates around the motor 6 in order to cool the motor; wherein the circulation of the fluid pumped by the second pump impeller 8C is carried out in a cylindrical space 40 formed around the motor 6, between the motor 6 and an external housing 2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Kurokawa in view of Pozivil by arranging the electric motor between the first and second impellers and their outlet and inlet conduits, respectively, as taught by Kobayashi, in order to cool the motor by running the working fluid over the motor's outer casing.

With respect to claim 12, Kurokawa in view of Pozivil in view of Kobayashi discloses the claimed invention except for the first pump impeller providing a flow rate of  $18\text{m}^3/\text{hr}$  at a pressure of 1.3 bar, and the second pump impeller providing a flow rate of  $2\text{m}^3/\text{hr}$  at a pressure of 2.8 bar. It would have been obvious to one having ordinary skill in the art at the time the invention to regulate the outlet flow rates and pressures to

specific values in order to meet the fluid pressure and flow rate requirements of a specific apparatus. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) see MPEP 2144.05 II. B - Only Result-Effective Variables Can Be Optimized).

9. Claims 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa 4,678,409 in view of Pozivil 6,167,724 in view of Kobayashi 5,888,053, and in further view of Cametti 2,887,062.

Kurokawa in view of Pozivil in view of Kobayashi discloses the invention as discussed above. However, Kurokawa in view of Pozivil in view of Kobayashi does not teach the following claimed limitations taught by Cametti.

Cametti teaches a motor pump unit comprising: a motor housing 1 wherein cooling fluid is carried in a coiled pipeline 56 which surrounds the motor 1. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the assembly of Kurokawa in view of Pozivil in view of Kobayashi by implementing a coiled pipeline, as taught by Cametti, instead of an annular cavity, in order to cool the motor because these assemblies are obvious variants of one another.

10. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa 4,678,409 in view of Pozivil 6,167,724 in view of Kobayashi 5,888,053, and in further view of Gaeth 5,049,770.



Kurokawa in view of Pozivil in view of Kobayashi discloses the invention as discussed above. However, Kurokawa in view of Pozivil in view of Kobayashi does not teach the following claimed limitations taught by Gaeth.

Gaeth teaches a pump where the pump body 14 is releasable from the motor 22, housing (12, 16), and pump impeller 108 (see column 7, lines 5- 36). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to make the low pressure pump body of Kurokawa in view of Pozivil in view of Kobayashi releasable from the motor, housing, and impellers, as taught by Gaeth, in order to allow the impeller to be easily replaced or serviced.

11. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa 4,678,409 in view of Pozivil 6,167,724, and in further view of Kobayashi 5,888,053.

Kurokawa (Fig. 3) discloses a pump system comprising: an electric motor 34 having a drive shaft 38, a first pump impeller 50 at a first axial position, the first impeller 50 having an outlet 70 to an exterior of the pump, a second pump impeller 50 (see how the identical housings are stacked) at a second axial position, the second impeller 50 having an inlet 74 and an outlet 70 to the exterior of the pump, wherein the outlets 70 of the first impeller and the second impeller are separate outlets to the exterior of the pump (see configuration in Fig. 3); wherein the outlets are close to each other. However, Kurokawa does not teach the following inlet, outlet, and impeller limitations taught by Pozivil or the motor cooling assembly of Kobayashi.

Pozivil (Fig. 3) teaches a pump assembly comprising: an electric motor 10 having a drive shaft 174 with axial ends, a first shaft output at a first of the axial ends (see 180), a second shaft output (see 192) at a second of the axial ends, a first pump impeller 180 at the first axial end and driven by the first shaft output, the first impeller operating at a low pressure and high flow rate, the first impeller having a first outlet (see 191) and a second outlet 188 to an exterior of the pump, a second pump impeller 192 at the second axial end and driven by the second shaft output, the second impeller operating at a higher pressure and lower flow rate as compared to the first impeller 180 (see col. 7, lines 12-29), the second impeller 192 having an inlet and a first outlet 198 to the exterior of the pump, wherein the first outlet (191) of the first impeller 180 is connected to the inlet of the second impeller 192 and delivers low pressure water to the inlet of the of the second impeller 192 so that the water flows from a region of low pressure toward a region of higher pressure, and wherein the second outlet 188 of the first impeller 180 and the first outlet 198 of the second impeller 192 are separate outlets to the exterior of the pump (see configuration in Fig. 3); wherein the first outlet (191) of the first impeller 180 is close to the second outlet 188 of the first impeller; wherein the first outlet (191) of the first impeller 180 is located upstream of the second outlet 188.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Kurokawa by implementing the inlet and outlet structure of Pozivil, thereby having the first impeller discharge a portion of fluid to the second impeller, in order to allow the impellers to discharge fluid at

different pressures; thus allowing the pump to perform a plurality of pumping duties that require various fluid pressures relatively efficiently (Pozivil, col. 2, lines 1-3).

Kobayashi teaches a pump assembly comprising: an electric motor 6 comprising a stator 13 and rotor 18, the rotor fixedly joined to a shaft 7 having axial ends defining a first shaft output at a first of the axial ends (see bottom of Fig. 1) and a second shaft output at a second of the axial ends (see top of Fig. 1); a centrifugal pump body with a exterior outlet 62 and an internal outlet (see outlet that goes from impeller 8B to space 48) located upstream of the exterior outlet 62, the pump body having an exterior first face and an opposite exterior second face (see configuration in Fig. 1); a first pump impeller 8B at the first axial end and driven by the first shaft output, the first impeller 8B operating at a low pressure and high flow rate, the first pump impeller rotating in the centrifugal pump body and discharging to the exterior outlet 62 and the internal outlet (port prior to 48); an annular space (48) connected to the internal outlet; discharge openings (see opening leading to 40) in the annular space; a housing (2) extending outward from the first face of the pump body; an inner duct 14 within the housing, the inner duct supporting the motor 6; a cylindrical space 40 located between the inner duct 14 and an inner side of the housing (2), the cylindrical space 40 in fluid communication, via the discharge openings, with the annular space (48), the cylindrical space 40 formed completely around the motor 6; and a second pump impeller 8C at the second axial end and driven by the second shaft output, the second impeller 8C operating at a higher pressure and lower flow rate as compared to the first impeller 8B, the second impeller

8C having an inlet in fluid communication with the cylindrical space 40 and an outlet (62) to the exterior of the pump.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the pump assembly of Kurokawa in view of Pozivil by arranging the electric motor between the first and second impellers and their outlet and inlet conduits, respectively, as taught by Kobayashi, in order to cool the motor by running the working fluid over the motor's outer casing.

With respect to claim 17, Kurokawa in view of Pozivil in view of Kobayashi discloses the claimed invention except for the first pump impeller providing a flow rate of  $18\text{m}^3/\text{hr}$  at a pressure of 1.3 bar, and the second pump impeller providing a flow rate of  $2\text{m}^3/\text{hr}$  at a pressure of 2.8 bar. It would have been obvious to one having ordinary skill in the art at the time the invention to regulate the outlet flow rates and pressures to specific values in order to meet the fluid pressure and flow rate requirements of a specific apparatus. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (*In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) see MPEP 2144.05 II. B - Only Result-Effective Variables Can Be Optimized).

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa 4,678,409 in view of Pozivil 6,167,724 in view of Kobayashi 5,888,053, and in further view of Gaeth 5,049,770.

Kurokawa in view of Pozivil in view of Kobayashi discloses the invention as discussed above. However, Kurokawa in view of Pozivil in view of Kobayashi does not teach the following claimed limitations taught by Gaeth.

Gaeth teaches a pump where the pump body 14 is releasable from the motor 22, housing (12, 16), and pump impeller 108 (see column 7, lines 5- 36). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to make the low pressure pump body of Kurokawa in view of Pozivil in view of Kobayashi releasable from the motor, housing, and impellers, as taught by Gaeth, in order to allow the impeller to be easily replaced or serviced.

***Allowable Subject Matter***

13. Claims 14-15 are allowed.
14. Claims 13 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

15. Applicant's arguments with respect to claims 1-8 and 11 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER J. BERTHEAUD whose telephone number is (571)272-3476. The examiner can normally be reached on M-F 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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